INDEX

ACRIVOS, A. *See* SHAIR

BALL, F. K. Some general theorems concerning the finite motion of a shallow rotating liquid lying on a paraboloid, 240

BALL, F. K. *See* MILES

BETCHOV, R. A simplified theory of magnetohydrodynamic isotropic turbulence, 33

BLYTHE, P. A. Non-equilibrium flow through a nozzle, 126

BOWDEN, K. F. and HOWE, M. R. Observations of turbulence in a tidal current, 271

BRENNER, H. and COX, R. G. The resistance to a particle of arbitrary shape in translational motion at small Reynolds numbers, 561

BRENNER, HOWARD, *See* PLISKIN

CAMPBELL, D. T. *See* TIEN

CHEN, CHE JEN. Experimental investigation of atomic recombination in a supersonic nozzle, 450

COOKE, J. C. Boundary-layer drag in three-dimensional supersonic flow, 61

COX, R. G. *See* BRENNER

CSANADY, G. T. Turbulent diffusion in Lake Huron, 360

DAVIDSON, J. F. *See* WALTERS

DRIVER, H. S. *See* SMY

EDWARDS, D. H., JONES, T. G. and PRICE, B. Observations on oblique shock waves in gaseous detonations, 21

FOX, HERBERT *See* LIBBY

GERRARD, J. H. *See* ZIENKIEWICZ

GREENSPAN, H. P. and HOWARD, L. N. On a time-dependent motion of a rotating fluid 385

GROVE, A. S. *See* SHAIR

HARPER, J. F. On boundary layers in two-dimensional flow with vorticity, 141

HERBERT, D. M. On the stability of visco-elastic liquids in heated plane Couette flow, 353

HOWARD, LOUIS N. Heat transport by turbulent convection, 405

HOWARD, L. N. *See* GREENSPAN

HOWE, M. R. *See* BOWDEN

JOHANNESEN, N. H. *See* ZIENKIEWICZ

JOHNSON, J. A. The stability of shearing motion in a rotating fluid, 337

JONES, J. G. Shock-expansion theory and simple wave perturbation, 506

JONES, T. G. *See* EDWARDS

JOUBERT, P. N. *See* PERRY

KIM, W. D. The pitching motion of a circular disk, 607

KURZWEG, ULRICH H. The stability of Couette flow in the presence of an axial magnetic field, 52

LEWIN, MYRNA and SCHMELTZER, ROBERT A. A new method for treating supersonic flow past nearby plane wings, 305

LIBBY, PAUL A. and FOX, HERBERT. Some perturbation solutions in laminar boundary-layer theory. Part 1. The momentum equation, 433

LICHTAROWICZ, A. and MARKLAND, E. Calculation of potential flow with separation in a right-angled elbow with unequal branches, 596

LONGUET-HIGGINS, M. S. The effect of non-linearities on statistical distributions in the theory of sea waves, 459

MARKLAND, E. *See* LICHTAROWICZ

MILES, JOHN W. The Cauchy–Poisson problem for a rotating liquid, 75

MILES, JOHN W. and BALL, F. K. On free-surface oscillations in a rotating paraboloid, 257

MOFFATT, H. K. Magnetic eddies in an incompressible viscous fluid of high electrical conductivity, 225

MORAN, JOHN P. Line source distributions and slender-body theory, 285

PERRY, A. E. and JOUBERT, P. N. Rough-wall boundary layers in adverse pressure gradients, 193

PETERSEN, E. E. *See* SHAIR

PLISKIN, IRWIN and BRENNER, HOWARD. Experiments on the pressure drop created by a sphere settling in a viscous liquid, 89

PRICE, B. *See* EDWARDS

RILEY, N. Unsteady heat transfer for flow over a flat plate, 97

ROBERTS, P. H. *See* STEWARTSON

RYHMING, INGE L. Non-equilibrium flow inside a wavy cylinder, 551

SAWYER, R. A. Two-dimensional reattaching jet flows including the effects of curvature on entrainment, 481

SCHMELTZER, ROBERT A. *See* LEWIN

SHAIR, F. H., GROVE, A. S., PETERSEN, E. E. and ACRIVOS, A. The effect of confining walls on the stability of the steady wake behind a circular cylinder, 546

SMITH, F. Theory of a two-stage hypervelocity launcher to give constant driving pressure at the model, 113

SMY, P. R. and DRIVER, H. S. Electrical conductivity of low-pressure shock-ionized argon, 182

SRIVASTAVA, A. C. Torsional oscillations of an infinite plate in second-order fluids, 171

STEWARTSON, K. and ROBERTS, P. H. On the motion of a liquid in a spheroidal cavity of a precessing rigid body, 1

STREET, ROBERT L. A linearized theory for rotational supercavitating flow, 513

TANNER, R. I. End effects in falling-ball viscometry, 161

TIEN, C. L. and CAMPBELL, D. T. Heat and mass transfer from rotating cones, 105

TURNER, J. S. and YANG, I. K. Turbulent mixing at the top of stratocumulus clouds, 212

WALTERS, J. K. and DAVIDSON, J. F. The initial motion of a gas bubble formed in an inviscid liquid. Part 2. The three-dimensional bubble and the toroidal bubble, 321

YANG, I. K. *See* TURNER

ZIENKIEWICZ, H. K. and JOHANNESEN, N. H. Departures from the linear equation for vibrational relaxation in shock waves in oxygen and carbon dioxide, 499

ZIENKIEWICZ, H. K., JOHANNESEN, N. H. and GERRARD, J. H. Further results on the over-all density ratios of shock waves in carbon dioxide, 267

REVIEWS

Handbook of Engineering Mechanics, 154

Mécanique de la Turbulence, 155

Fundamental Problems in Turbulence and their Relation to Geophysics, 159

Aerodynamic Phenomena in Stellar Atmospheres, 314

Advances in Applied Mechanics, Vol. VII, 316

Reports on Progress in Physics, Vol. XXV, 316

Mécanique Expérimental des Fluides, 318

Proceedings of the 1963 *Heat Transfer and Fluid Mechanics Institute*, 320

Shock Tubes, 630

The Shock Tube in High-temperature Chemical Physics, 630

Real Gases, 631

Combustion and Propulsion: Fourth Agard Colloquium, 632

The Scientific Papers of G. I. Taylor. Vol. III. *Aerodynamics and the Mechanics of Projectiles and Explosions*, 633

Übungen zur Gasdynamik, 636

Viscous Hypersonic Flow, 638

CONTENTS TO VOLUME 17

PART 1 SEPTEMBER 1963

On the motion of a liquid in a spheroidal cavity of a precessing rigid body. K. STEWARTSON and P. H. ROBERTS *page* 1

Observations on oblique shock waves in gaseous detonations. D. H. EDWARDS, T. G. JONES and B. PRICE 21

A simplified theory of magnetohydrodynamic isotropic turbulence. R. BETCHOV 33

The stability of Couette flow in the presence of an axial magnetic field. ULRICH H. KURZWEG 52

Boundary-layer drag in three-dimensional supersonic flow. J. C. COOKE 61

The Cauchy–Poisson problem for a rotating liquid. JOHN W. MILES 75

Experiments on the pressure drop created by a sphere settling in a viscous liquid. IRWIN PLISKIN and HOWARD BRENNER 89

Unsteady heat transfer for flow over a flat plate. N. RILEY 97

Heat and mass transfer from rotating cones. C. L. TIEN and D. T. CAMPBELL 105

Theory of a two-stage hypervelocity launcher to give constant driving pressure at the model. F. SMITH 113

Non-equilibrium flow through a nozzle. P. A. BLYTHE 126

On boundary layers in two-dimensional flow with vorticity. J. F. HARPER 141

REVIEWS

Handbook of Engineering Mechanics 154

Mécanique de la Turbulence 155

Fundamental Problems in Turbulence and their Relation to Geophysics 159

PART 2 OCTOBER 1963

End effects in falling-ball viscometry. R. I. TANNER 161

Torsional oscillations of an infinite plate in second-order fluids. A. C. SRIVASTAVA 171

Electrical conductivity of low-pressure shock-ionized argon. P. R. SMY and H. S. DRIVER 182

Rough-wall boundary layers in adverse pressure gradients. A. E. PERRY and P. N. JOUBERT 193

Turbulent mixing at the top of stratocumulus clouds. J. S. Turner and I. K. Yang *page* 212

Magnetic eddies in an incompressible viscous fluid of high electrical conductivity. H. K. Moffatt 225

Some general theorems concerning the finite motion of a shallow rotating liquid lying on a paraboloid. F. K. Ball 240

On free-surface oscillations in a rotating paraboloid. John W. Miles and F. K. Ball 257

Further results on the over-all density ratios of shock waves in carbon dioxide. H. K. Zienkiewicz, N. H. Johannesen and J. H. Gerrard 267

Observations of turbulence in a tidal current. K. F. Bowden and M. R. Howe 271

Line source distributions and slender-body theory. John P. Moran 285

A new method for treating supersonic flow past nearly plane wings. Myrna Lewin and Robert A. Schmeltzer 305

Reviews

Aerodynamic Phenomena in Stellar Atmospheres 314

Advances in Applied Mechanics, Vol. VII 316

Reports on Progress in Physics, Vol. XXV 316

Mécanique Expérimentale des Fluides 318

Proceedings of the 1963 *Heat Transfer and Fluid Mechanics Institute* 320

Part 3 November 1963

The initial motion of a gas bubble formed in an inviscid liquid. Part 2. The three-dimensional bubble and the toroidal bubble. J. K. Walters and J. F. Davidson 321

The stability of shearing motion in a rotating fluid. J. A. Johnson 337

On the stability of visco-elastic liquids in heated plane Couette flow. D. M. Herbert 353

Turbulent diffusion in Lake Huron. G. T. Csanady 360

On a time-dependent motion of a rotating fluid. H. P. Greenspan and L. N. Howard 385

Heat transport by turbulent convection. Louis N. Howard 405

Some perturbation solutions in laminar boundary-layer theory. Part 1. The momentum equation. Paul A. Libby and Herbert Fox 433

Experimental investigation of atomic recombination in a supersonic nozzle. Che Jen Chen 450

The effect of non-linearities on statistical distributions in the theory of sea waves. M. S. Longuet-Higgins 459

PART 4 DECEMBER 1963

Two-dimensional reattaching jet flows including the effects of curvature on entrainment. R. A. SAWYER *page* 481

Departures from the linear equation for vibrational relaxation in shock waves in oxygen and carbon dioxide. H. K. ZIENKIEWICZ and N. H. JOHANNESEN 499

Shock-expansion theory and simple wave perturbation. J. G. JONES 506

A linearized theory for rotational supercavitating flow. ROBERT L. STREET 513

The effect of confining walls on the stability of the steady wake behind a circular cylinder. F. H. SHAIR, A. S. GROVE, E. E. PETERSEN and A. ACRIVOS 546

Non-equilibrium flow inside a wavy cylinder. INGE L. RYHMING 551

The resistance to a particle of arbitrary shape in translational motion at small Reynolds numbers. H. BRENNER and R. G. COX 561

Calculation of potential flow with separation in a right-angled elbow with unequal branches. A. LICHTAROWICZ and E. MARKLAND 596

The pitching motion of a circular disk. W. D. KIM 607

REVIEWS

Shock Tubes. The Shock Tube in High-temperature Chemical Physics 630

Real Gases 631

Combustion and Propulsion: Fourth Agard Colloquium 632

The Scientific Papers of G. I. Taylor. Vol. III. Aerodynamics and the Mechanics of Projectiles and Explosions 633

Übungen zur Gasdynamik 636

Viscous Hypersonic Flow 638

INDEX TO VOLUME 17 639